



Association Between Perceived Risk of Infection With COVID-19 And Protective Behavior Among Adults in Uganda, May 2020

Authors: Josephine Namayanja¹, Immaculate Akusekera¹, Patricia Thiwe¹, Elizabeth Katana¹, Steven N Kabwama¹,

Affiliations

¹Uganda Public Health Fellowship Program, Ministry of Health, Kampala, Uganda

*Corresponding author: jnamayanja@musph.ac.ug

Summary

Since the confirmation of the first SARS-CoV-2 infection in Uganda on March 21, 2020, government efforts to minimize spread emphasized individual protective behaviors such as frequent hand washing, using alcohol-based hand sanitizers, social distancing, and wearing face masks in public. We assessed individual risk perception of COVID-19 infection and protective behavioral responses early in the outbreak to inform interventions to reduce COVID-19 spread. We conducted an online survey during April 27-May 2, 2020 and distributed it via social media. Respondents were obtained using a quasi-snowball strategy. We asked about perceived risk of contracting COVID-19 and individual preventive behavioral activities implemented since March 21. We performed modified Poisson regression analysis to identify factors associated with perceived risk of contracting COVID-19.

Amongst 430 respondents (mean age=37 years, $SD\pm 11.8$), 217 (51%) were males, 344 (80%) were university-educated and 199 (46%) had >5 household members. Nearly all (97%) self-reported washing their hands regularly, and 412 (96%) believed that regular handwashing prevented COVID-19 spread; 244 (57%) reported that regular handwashing was easy for them. Although 352 (82%) believed face masks prevented spread of COVID-19, only 106 (25%) reported wearing them in public; 371 (86%) said they could not easily access masks. Additionally, 400 (93%) believed that using alcohol-based hand sanitizers would prevent COVID-19 spread but only 324 (75%) said they used them. Three hundred and forty-eight (81%) reported being worried about contracting COVID-19. Being worried about contracting COVID-19 was higher among participants who washed their hands with soap and water regularly (PR: 4.20, 95%CI: 1.3–13). Among our survey respondents, perception of individual COVID-19 risk was high and associated with regular self-reported regular hand washing with water and soap. Few people easily accessed face masks and sanitizers and easily practiced social distancing. We recommended public health authorities to improve coverage of hand washing facilities and increase mask access.



INTRODUCTION

Coronavirus disease 2019 (COVID-19) is an infectious disease caused by severe acute respiratory syndrome coronavirus2 (SARS-CoV-2) (WHO, 2020). The virus is mainly spread during close contact, and by small droplets produced when people cough, sneeze, or talk. People may also catch COVID-19 by touching contaminated surfaces (WHO, 2020).

Since no specific vaccines or treatments have been developed, avoiding exposure is considered to COVID19 is the best available way to prevent the infection with this virus. The most important protective measures on a personal level included frequent hand washing, using alcohol-based hand sanitizers, maintaining distance of at least 2m with other people when in a public place, wearing a face mask when in public, avoiding touching nose, mouth and eyes (WHO,2020). To achieve the successful implementation of such measures recommended by public health authorities, the willingness of the public plays an important role (Ibuka Y; et al, 2009).

Since the confirmation of the first case of COVID-19 on March 21st, 2020, the government of Uganda instituted various preventive measures to reduce the chances of spread of the disease. However, the public's perceptions of risk of the disease and the extent of implementation of the recommended preventive measures was not clearly understood. We assessed the public's risk perception for COVID-19 and protective behavioral response towards the disease so as to generate evidence for targeted development of interventions against COVID19.

METHODS

Design and setting

We conducted a self-administered online survey designed on Google forms between 27 April and 2 May 2020. By the time the survey was conducted, 79 cases of COVID-19 had been reported in Uganda, with 46 recoveries and no death. By 2 May 2020, when the survey was concluded, Uganda had 88 COVID-19 confirmed cases with 52 recoveries and no death had been recorded.

Study participants and data collection

All adult people from the general public were invited to participate in this survey. The URL link for the survey material was <https://docs.google.com/forms/d/e/1FAIpQLScS-0PIT-ESmj5YOxuVC-sFo-bVPrKZm-bQDd23xqcTuTepvw/viewform?vc=0&c=0&w=1>. UWe



used social networking sites such as, WhatsApp and Facebook to share the survey link with potential participants. We collected data on;

Survey tool

The first part of the survey questionnaire included information about socio-demographic characteristics of the participants, such as age, gender, occupation, highest level of education, household size and District of residence.

The second part included questions to ascertain peoples' perception of risk for COVID-19. The questions were mainly about peoples' knowledge about COVID-19, how worried they were about the disease, whether it was possible for them to contract the disease, whether it was possible for their loved ones to contract COVID-19, whether there was a likelihood for an infected person to pass on the infection to other people and whether they knew of any proven treatment against COVID-19.

The third part included questions that were asked to understand peoples' preventive behavioral response against COVID-19. The questions were about regular hand washing, how easy they found practicing regular hand washing, using alcohol-based hand sanitizers, how easy it was for them to access alcohol-based hand sanitizers, wearing face mask when in public, how easy it was to access face masks, practicing social distance, how easy it was to practice social distance and whether practicing all these preventive behaviors would help prevent the spread of COVID-19.

Data analysis

The dependent variable was perceived risk for COVID-19 which was determined and categorized on two levels; not worried and worried. The independent variables considered included socio-demographics including age, sex, education, occupation and house hold size. Other factors included if they thought it was possible to contract COVID-19, if they thought they could transmit it to others, if they washed their hands with soap and water regularly, wearing face mask in public, if they practiced social distancing and overall preventive behavior for COVID-19 determined on a binary scale. We performed modified Poisson regression analysis to identify factors associated with perceived risk (worry about) of contracting COVID-19.



RESULTS

Socio demographic characteristics of the participants

A total of 430 individuals participated in this survey with a mean age of 37 years, SD of 11.8 and ranging from 20 to 67 years. The majority (217, 51%) were males, 344 (80%) had attained up to university level of education, 279(65%) were civil servants, 143 (33%) were residents of Kampala district and 199 (46%) had more than five people staying in their household.

Protective behavior for COVID-19 among the participants

Of the 430 participants, 415 (97%) washed their hands regularly, only 106 (25%) were wearing face masks in public. Use of alcohol-based sanitizers was reported by 324 (75%) and 328 (76%) would keep a 2m distance from other people when in public.

Ease of engaging in protective behavior

Two hundred forty-four (57%) of the respondents practiced regular hand washing with ease, only 59 (14%) would easily access face mask, 75 (17%) found it easy to access sanitizers, and only 44 (10%) would easily keep a 2m distance from other people.

Perceptions about the effectiveness of preventive behavior

Nearly all participants (412, 96%) believed that regular hand washing prevented the spread of COVID-19 and 352 (82%) believed that wearing a face mask could prevent the spread of the disease. Four hundred (93%) believed that using alcohol-based sanitizers would prevent the

spread of COVID-19 and 388 (90%) believed that if they kept a 2m distance from other people it would prevent the spread of the disease.

Risk perception of COVID-19 among Ugandans, May 2020

Three hundred forty-eight (81%) reported being worried of contracting COVID-19.



Factors associated with perceived risk for COVID-19 among Ugandans May 2020

At bivariate analysis, the odds of being worried vs not worried about contracting COVID-19 were 4.2 times higher among participants who washed their hands with soap and water regularly (PR: 4.20, 95%CI: 1.3–13).

Discussion

The perception of risk for infection with COVID-19 was high (81%) amongst the studied individuals. Most respondents are alert to the disease progression, and adopt self-protective measures. Higher risk perception translates into the take up of more preventive measures—the more people fear, the more they protect themselves (Celine Aerts, et al; 2020).

The level of risk perception (81%) found by this study is slightly lower than the 92.5% that was reported by a study conducted in Wuhan China among 1,352 college students with aim to determine if they believed that any healthy person could contract the disease (Ding Y, et al, 2020). The disagreement between these two study findings could be explained by the difference in the settings between China and Uganda as well as the dynamics of transmissions and progression of the disease in the two countries.

Preparedness for COVID-19 outbreak in the communities with emphasis on risk communication activities was initiated by MOH several weeks before Uganda confirmed her first case. This could have played a role in the high level of risk perception found by this study as majority of the general public were willing to take up the key preventive measures with support from the public health authorities.

These findings were similar to the findings by Dry Hurst, Sarah et al who assessed public risk perception for COVID-19 among 6,991 respondents in 10 countries across Europe and revealed a significant correlation between risk perception and the adopted preventive health behaviors ie wearing face masks, maintaining physical distance among others. In another similar study carried out in Hong Kong during the early phase of the COVID-19 Pandemic, most respondents were worried about COVID-19 (97%) (Barrios & Hochberg, 2020).



We acknowledge the limitation that the data collection approach through an Online questionnaire only targeted a certain group of people, more of the highly educated or urban dwellers, this might have over or underestimated the true risk perception of COVID-19 among Ugandans hence affect external validity of our findings. However, the findings from this study revealed that people were aware of the disease, its associated preventive measures, and exposure behaviors. It further revealed the risk perception at an individual level and this could help inform subsequent interventions and risk communication strategies as the pandemic progresses.

Conclusion

Perception of individual COVID-19 risk was high and associated with regular self-reported regular hand washing with water and soap. Few people easily accessed face masks and sanitizers and easily practiced social distancing. We recommended public health authorities improve coverage of hand washing facilities and increase mask access. Increased access to alcohol-based hand sanitizers especially in public places as well as increasing awareness regarding the implementation of individual protective behaviors is also critical. The population was unusually educated and does not represent the Uganda population at large; the study should be repeated in other settings/populations to enhance representativeness.

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